

**Abstract**

A method of and arrangement for buffering, during at least a predetermined retention time, a digital optical signal ( $S(i)$ ,  $i = 0, \dots, 3$ ) having a predetermined digital level is described. In one illustrative embodiment, the method includes inputting the  
5 optical signal ( $S(i)$ ) to an optical input of a semiconductor laser element ( $SLE(i)$ ) and injecting an injection current to the semiconductor laser element ( $SLE(i)$ ) to establish an optical gain process in the semiconductor laser element ( $SLE(i)$ ), the injection current having an amplitude such that the optical gain process and an optical absorption process within the semiconductor laser element ( $SLE(i)$ ) outweigh one another longer than the  
10 retention time in order to keep the digital optical signal on the predetermined digital level during the retention time.

FOR OFFICIAL USE ONLY